

~~TOP SECRET DAUNT~~*Good report*30 March 1960
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NSA Declassification/Release Instructions on File

MEMORANDUM FOR: Assistant Director, Research and Reports
THROUGH : Chief, Intelligence Information Staff, ORR
FROM : ORR Representative to the Automation Development Group
(ADG), OCR and I/GM/RR
SUBJECT : Feasibility Study of the Application of the Minicard
System to the Manipulation of [REDACTED] Data

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1. As you may recall, there was a discussion several months ago between Mr. [REDACTED] DAD/OCR and Mr. [REDACTED] D/Chief, ERA/ORR, regarding the possible applications of automatic data processing equipment and procedures to selected ORR analytic problems. One result of this discussion was the proposal that the OCR Minicard system be tested to determine what share of a mass data storage, retrieval and manipulation job it might be able to perform. We in ORR recognized that Minicard was specifically designed for document storage and recovery, and that, as a result, certain deficiencies in mass data applications were almost certain to be encountered. The test was to be made by introducing a representative sample [REDACTED] data into the Minicard system and then manipulating it for print-out according to I/GM/RR analysts' instructions. It was agreed that with this [REDACTED] data we had a typical mass data exploitation problem, although we actually planned to process for the test only a small portion of the total data available. For example, the total known data includes [REDACTED], but we eventually agreed that [REDACTED] would be adequate for the test.

2. As a result of consultations between St/I and I/GM concerning the most effective way to test the Minicard system, it was agreed with your concurrence, that the ORR Representative to ADG/OCR, [REDACTED] would index and process into the Minicard system about [REDACTED] movements. This number of [REDACTED] movements, properly analyzed, was considered sufficient to permit I/GM analysts to try out their theories as to how such data could be most profitably arranged and manipulated.

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3. We obtained from OCI/SPINT an exception to the security policy forbidding the movement of [REDACTED] outside the secure area, and we obtained OCI approval of our proposed security precautions during the processing of the data into Minicards and during the manipulative print-outs. We

~~TOP SECRET DAUNT~~

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25X1D
NSA

SUBJECT: Feasibility Study of the Application of the Minicard System to
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arranged with ADG/OCR for the Minicard people to accord our experiment a moderate priority in relation to their regular operations.

4. We originally expected that the input into the Minicard system could be completed within 30 days, with the I/GM analysts' experimental manipulation taking two or three more weeks. We were somewhat over-optimistic about the time required for input. The details on the priority conflicts and Minicard equipment malfunctions are carried in the attached report.

5. As a result of the combined St/I-I/GM effort, we came to the following conclusions regarding Minicard capability to handle a mass data recovery and manipulation problem (see attached report for details).

a. Specific Functions

(1) Input Time. It is very difficult to make a fair and meaningful appraisal of Minicard input time. Compared to normal input time for standard IBM equipment, Minicard input involves a greater number of steps and very probably greater time. This is true even though a few of the Minicard steps individually may be performed at higher speeds than comparable steps by IBM. Thus, we believe that input time for Minicard would make it an inefficient system for mass data problems of any considerable magnitude.

(2) Storage Capacity. The individual Minicard has a relatively high storage capacity for data compared to an IBM card. The memory unit demonstrated sufficient storage capacity to permit the phrasing of unique types of questions for interrogating the Minicard file during the test. However, we do not believe that the Minicard system has sufficient storage capacity to permit the effective storage, recovery, and manipulation of mass data of the magnitude of the [REDACTED] Movements.

(3) Selection and Sorting Speed. Selector speed for file interrogation, at peak, is well above regular IBM card speed. The same is true for the Minicard sorting speed. This speed was adequate for the limited sample used and for the limited test, but we believe both would be unsatisfactory for a mass data problem.

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25X1D

NSA

(4) Minicard Duplication and Print-out. The speed of the duplicator for file extension is considerably beyond that of standard IBM equipment. We did not actually measure this function in our test. The print-out from the duplicator is through a standard Flexowriter which gives rise to two serious deficiencies; first, extremely unsatisfactory speed and, second, unformatted print-out. The importance of both these deficiencies increase in rough proportion to the size of the mass data base, and both render the existing Minicard system unsatisfactory for even moderate mass data problems.

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(5) Mass Data Manipulation. We attempted only simple data manipulation in the Minicard test. This included city saturation runs, with various qualifications, and selections by date, [REDACTED] and the like. Even with these relatively simple manipulations for the small sample, we gained insight into two serious Minicard limitations. First, we used nearly half the interrogation vocabulary for a relatively simple question regarding three cities. Thus, the 17-19 word interrogation vocabulary of the Minicard memory unit places a severe limit on the complexity of a single question which can be asked. Second, the speed of the Minicard equipment concerned with data storage, retrieval, and manipulation would make it impractical for mass data manipulations.

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b. General. In light of the foregoing, we believe that the existing Minicard system is not an efficient or an effective means of storing and manipulating mass data for sub-analytic purposes. The main deficiencies of Minicard, as measured against mass data storage and manipulation needs, are: (1) slow speed of input; (2) slow speed of duplication, selection, and manipulation; (3) the slow speed of print-out; and (4) the unformatted print-out.

6. We believe the foregoing to be a fair and accurate appraisal of the existing Minicard potential for mass data application. However, we should like to stress two points. First, the conclusions regarding Minicard capabilities are based upon a test by sample, and insight gained therefrom. Second, measuring Minicard performance and capabilities against the needs for adequate mass data storage and manipulation, a job Minicard was not designed to do, places emphasis upon Minicard short-comings.

~~TOP SECRET DRAFT~~

TOP SECRET DAUNT

25X1D
NSA

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the Manipulation of [REDACTED] Data

7. We believe that the time and effort spent on the test appreciably increased our understanding of the problems involved in any application of ADP equipment and procedures to selected ORR analytic support problems.

8. The attached Staff Study provides a detailed account of our test undertaking and the primary results thereof.

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Attachment:
As stated above

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